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ABSTRACT

Tables illustrate the relationship between elementary and secondary teachers available for positions and actual jobs open to them in the year 1978. Prediction, based on previous surveys, is made for future opportunities for teachers through the year 1985. Nationwide population trends are analyzed as they affect future teaching opportunities. (JD)

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Teacher Supply and Demand in Public Schools 1978 With Population Trends and Their Implications for Schools 1979

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A National Education Association Publication

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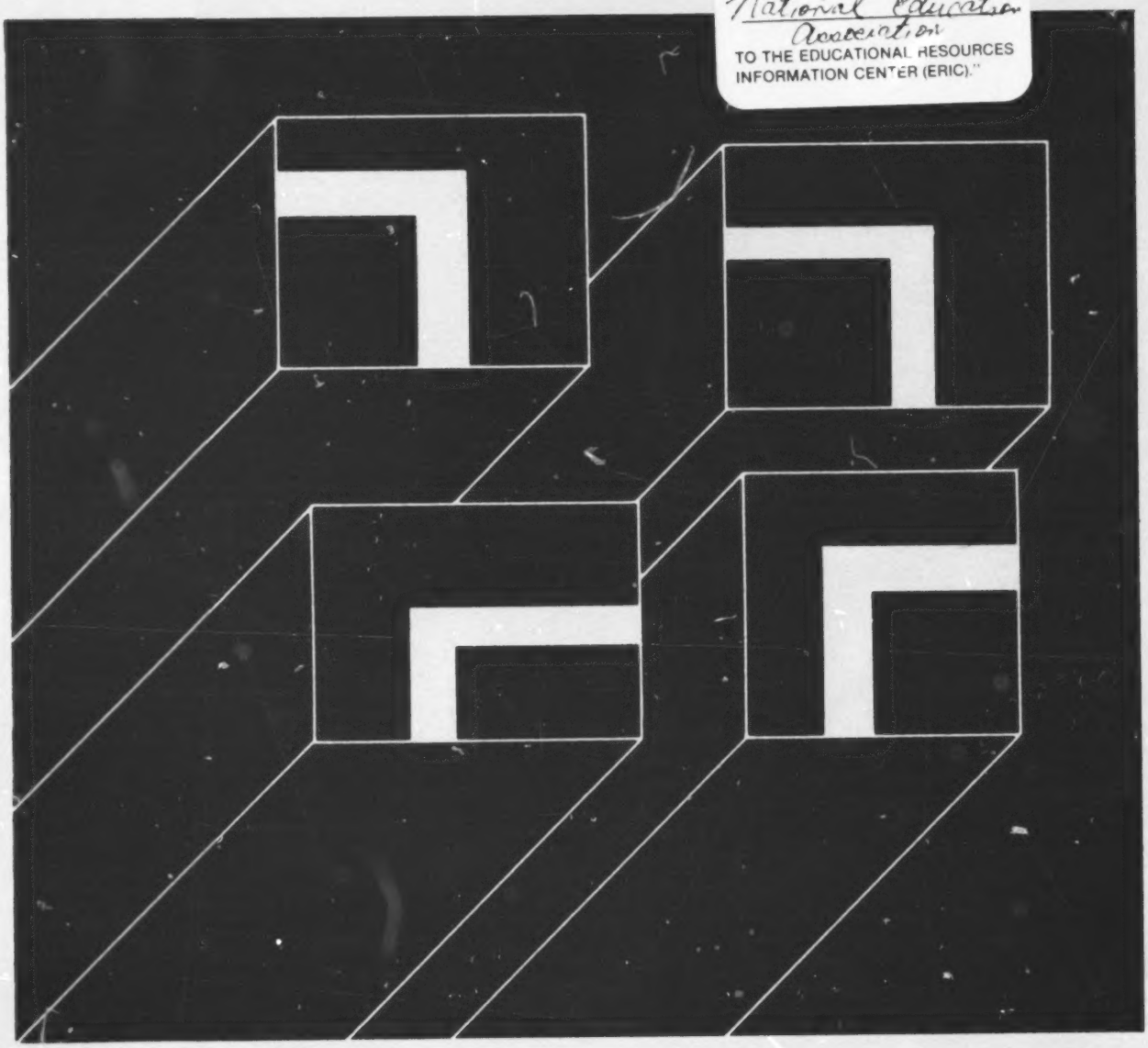

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Teacher Supply and Demand in Public Schools, 1978

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TEACHER SUPPLY AND DEMAND IN PUBLIC SCHOOLS, 1978

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TEACHER SUPPLY AND DEMAND IN PUBLIC SCHOOLS, 1978

- *The supply of graduates completing preparation to enter teaching in 1978 (190,266 graduates) is smaller by 3.9 percent than the number reported for 1977. This is the sixth consecutive year that the number completing preparation to enter teaching has decreased from the all-time high of 317,254 in 1972.*

- *The 586,700 beginning teachers needed to raise the quality of public school programs and staffing in fall 1978 to minimum levels is 439,850 more beginning teachers than are available from the 1978 graduating class of prospective teachers.*

- *The number of prospective teachers from the 1978 graduating class seeking teaching positions (146,850 persons) exceeds by 71,450 the number of teaching positions actually open to them (75,400 positions).*

- *Employment in teaching positions in the fall following graduation is reported for 49.4 percent of the 1977 graduates prepared to enter teaching. Fifteen years ago employment in teaching positions was reported for 74.4 percent of 1962 graduates completing preparation to enter teaching.*

- *Teaching assignments in which the supply is least adequate are mathematics, natural and physical sciences, distributive education, vocational-technical subjects, and agriculture. Assignments in which the supply is most adequate are social sciences, physical and health education, art, and elementary regular instruction.*

- *The supply-demand imbalance is very likely to continue for the next four years.*

Definitions of Terms Used in This Study

Quality Criterion Estimate: The number of teachers needed to attain a minimum level of quality in public schools this year.

Adjusted Trend Criterion Estimate: The number of teaching positions that will be filled.

Beginning Teacher: A person entering active employment as a full-time teacher for the first time.

Re-Entering Teacher: A person re-entering active status who was not employed as a full-time teacher during the preceding school year.

New Teacher: A person entering or re-entering active status who was not employed as a full-time teacher during the preceding school year. (The demand for new teachers is the sum of the demand for beginning and the demand for re-entering teachers.)

Statistical information about the supply and demand for public school teachers in 1978 has been collected by NEA Research from institutions that prepare persons for entry into teaching and from state departments of education. The continuing assistance of these institutions, state education agencies, and state education associations has made possible this thirty-first annual study.

Supply of Beginning Teachers

During the 1977-78 session every institution that prepares persons for meeting the minimum certification requirements for initial entry into public school teaching reported the number of graduates completing preparation to enter teaching. The institutions supplied both the actual number graduating in 1977 and the number expected to graduate in 1978. Included are all graduates with at least a bachelor's degree completing minimum requirements for teacher certification for the first time.

The total number of graduates completing preparation to enter assignments in elementary, secondary, or special education classrooms is 190,266 in 1978, a decrease of 3.9 percent from the 198,036 graduates actually reported for 1977. It is lower by 40.0 percent than the all-time high of 317,254 graduates completing preparation to enter teaching in 1972.

The total number completing preparation to enter teaching in 1978 (excluding persons prepared to enter library science positions) represents 18.0 percent of the estimated total number of graduates receiving the bachelor's and first professional degree. Between 1960 and 1972 the numbers of graduates completing preparation to enter teaching (including library science) represented between 33.5 percent and 36.3 percent of the total number of graduates receiving the bachelor's and first professional degree.

The total number completing preparation for entry into elementary school assignments in 1978 (73,047 graduates) is 2.8 percent lower than the number completing similar preparation in 1977 (75,154). This is the sixth year that the number completing preparation for entering elementary school assignments has been lower than the all-time high of 128,613 graduates reported in 1972.

The total number completing preparation to enter teaching in secondary school assignments in 1978 is 93,705 graduates (down 4.7 percent from the 98,371 reported for 1977). This is the seventh year that the numbers completing preparation for entry at the secondary level have been lower than the all-time high of 174,759 reported in 1971.

The number completing preparation to enter teaching in special education assignments at either the elementary or secondary school level is 23,514 graduates in 1978, a decrease of 4.1 percent from the 24,511 graduates completing similar preparation in 1977. The number in the 1978 class completing preparation in special education is three times the number completing this type of preparation nine years ago (7,845 graduates were reported in 1969) and is more than five times the number reported 12 years ago (4,380 graduates were reported in 1966).

Each November institutions are requested to estimate how many students will graduate with minimum certification qualifications for entering public school teaching at the end of the current academic year, the actual number graduating with these qualifications the previous year, and placement information for those graduating the previous year. The number of graduates reported in the annual summary is the estimate for the year of the survey. During the past 10 years the actual number of graduates reported one year after the estimates for a given year has ranged from 8.1 percent below to 2.1 percent above the estimates published, with a median of 5.7 percent below the estimates.

The estimated numbers of students graduating with minimum certification qualifications in 1978 are lower than the similarly estimated numbers for 1977 by 7.0 percent for persons prepared for elementary school assignments, 12.2 percent for those in secondary, 15.3 percent for those in special education, and 10.7 percent for the total numbers prepared to enter teaching.

About 3 teacher education graduates in 10 are male (28.3 percent) in 1978; this is similar to the percents reported during the period between 1963-64 and 1973-74 but is considerably below the 36.2 to 44.2 percent reported between 1951-52 and 1961-62. The proportion of *all* public school teachers who are men is 33.6 percent in both 1977-78 and 1978-79 and was 33.5 percent in both 1976-77 and 1974-75. The 1974-75 level ended the trend of increasing by almost 0.3 percentage points each year during the preceding ten years. The percent of all teachers who are men was 24.6 percent in 1953-54, 31.1 percent in 1963-64, and 33.8 percent in 1973-74.

The states differ in the total number of graduates completing preparation to enter regular teaching assignments and in the percent change over the past year in the number completing preparation to teach. The numbers completing preparation in 1978 range from 153 in Alaska to 15,653 in Texas. Fourteen states report fewer than 1,000 graduates completing preparation to enter teaching and five states report 10,000 or more. Eight states report an increase of at least 5 percent in the number of graduates prepared to teach in 1978 over the number in 1977 (Alaska, Idaho, Massachusetts, Mississippi, Nebraska, New Mexico, Oklahoma, South Dakota) and seven states report a decrease of at least 10 percent over this period (Connecticut, District of Columbia, Hawaii, Michigan, Montana, New Jersey, New York).

Proportion of Graduates Applying for Jobs– The estimated number of graduates completing preparation to teach in each major assignment classification in public schools is shown in Table 1, column 2. These estimates are based upon an assumption that the distribution of graduates among assignments is the same in 1978 as it was in 1974. The number reported for a given assignment classification may be a minimum estimate because many graduates have completed preparation to enter more than one assignment. The institutions report each graduate only once and arbitrarily assign a classification to each graduate who has multiple assignment options.

Typically, many persons completing preparation to enter public school teaching do not obtain positions during the subsequent year. The unmeasured and interrelated effects of many factors make it impossible to estimate the precise number who will actively seek employment in teaching immediately after graduation. Some of these factors include the economic status of teaching jobs compared to that of other positions open to qualified graduates, attractiveness of working conditions in

TABLE 1.–SUPPLY OF AND DEMAND FOR BEGINNING TEACHERS IN PUBLIC SCHOOLS BY TYPE OF ASSIGNMENT, FALL 1978

Assignment area	Estimated number completing preparation to teach	Estimated supply	Estimated demand	Supply minus demand	Supply as percent of demand
1	2	3	4	5	6
ELEMENTARY TOTALS	88,187	73,400	34,100	39,300	215.2
Regular instruction	69,467	58,700	25,150	33,550	233.4
Art	1,096	950	600	350	158.3
Foreign language	146	150	100	50	150.0
Music	950	800	1,350	–550	59.3
Physical and health education	1,388	1,150	1,450	–300	79.3
Special education	15,140	11,650	5,450	6,200	213.8
SECONDARY TOTALS	102,079	73,450	41,300	32,150	177.8
Agriculture	1,031	750	700	50	107.1
Art	5,341	3,800	1,400	2,400	271.4
Business education	5,247	3,750	2,100	1,650	178.6
Distributive education	562	400	300	100	133.3
English language arts (total)	15,368	11,000	6,900	4,100	159.4
Foreign languages (total)	5,060	3,600	2,600	1,000	138.5
Home economics	4,592	3,300	1,800	1,500	183.3
Industrial arts	3,467	2,500	1,550	950	161.3
Mathematics	6,653	4,750	3,700	1,050	128.4
Music	5,435	3,900	2,450	1,450	159.2
Physical and health education–boys	8,621	6,150	1,900	4,250	323.7
Physical and health education–girls	6,278	4,500	1,800	2,700	250.0
Natural and physical sciences (total)	6,466	4,600	3,500	1,100	131.4
Social sciences (total)	17,898	12,800	3,600	9,200	355.6
Trade, industrial, vocational, technical	656	450	2,200	–1,750	20.5
Other secondary subjects	1,030	750	700	50	107.1
Special education	8,374	6,450	4,100	2,350	157.3
TOTAL: Elementary and Secondary	190,266	146,850	75,400	71,450	194.8

teaching positions compared to that of other jobs open to qualified graduates, and extent that publicity about the job shortage for teachers may reduce the numbers of graduates willing to invest time and resources in applying for a scarce position-vacancy.

The percent of qualified graduates obtaining teaching positions during a period of general shortages of qualified teachers provides a useful base for estimating the percent of present graduates expected to seek teaching positions if working conditions and salaries are reasonably attractive. This is likely to be a conservative estimate because even during the period of general shortages, the supply of applicants exceeded the number of openings in some assignment areas (notably in social studies, which affects a significant number of graduates prepared to teach), and follow-up information was not available for 10 percent of the graduates (some of whom may have found teaching positions but did not notify their college placement offices). Also, depending upon the current effects of the various factors noted above, projections from this base may be higher or lower than the actual percents of qualified graduates actively seeking teaching positions.

A recent National Center for Education Statistics study of graduates who have received the bachelor's or master's degree indicates that only 77.0 percent of those completing minimum requirements for teacher certification in 1974-75 report that they applied for a teaching position. That study also reveals that the average annual salary of bachelor's degree graduates employed as teachers ($8,300) was lower than all but one of the 17 occupational groupings into which data were summarized and was far below the overall average salary of $9,400. This suggests that for many graduates the decision to apply for a teaching position may be a second choice, which may follow an unsuccessful bid for other appropriate employment. An additional "supply" of qualified applicants may be expected to actively seek teaching positions if teachers' salaries become more competitive with those in other occupations entered by new college graduates.

Recent deterioration in attractiveness of salaries for beginning teachers is evident when average beginning salaries for public school teachers with a bachelor's degree are compared with average salary offers made by private industry to college graduates with a bachelor's degree (as published in the Endicott* reports). In 1977-78 the average starting salary of public school teachers with a bachelor's degree was $9,713, which is lower than the average salary offer made by approximately 200 companies to bachelor's degree graduates in every one of the 10 subject fields. Beginning salaries ranged from $11,004 to $15,606 for June 1977 bachelor's degree graduates among these 10 subject groupings.

The index relationship of the average 1977 starting salary offered by private industry to that offered to beginning school teachers ranges from 160.7 for graduates in engineering to 113.3 for graduates in the liberal arts. The index relationship of average salaries in eight of these 10 fields is higher in 1977-78 than in 1975-76 (the most recent year for which comparable salary offer information in the Endicott surveys is available). The net result is that the 1977 salaries of beginning teachers are less competitive than they were in 1975 in eight of the 10 subject field groupings.

The number of graduates estimated to be seeking employment in teaching if attractive positions are available in fall 1978 is provided in column 3 of Table 1. The application rate for teaching jobs estimated for graduates prepared to teach at the elementary school level is 84.5 percent. In 1958 when entry rates were near their peak and follow-up information was reported for a very high proportion of graduates prepared to enter teaching, 83.3 percent entered teaching positions immediately after graduation and an additional 1.7 percent were seeking a teaching job. The job application rate similarly estimated for graduates prepared to teach in secondary schools is 71.5 percent. In 1962 immediate employment in teaching positions was reported for 69.2 percent of graduates prepared to teach, and an additional 1.5 percent were seeking a teaching job.

The job application rate estimated for graduates prepared to teach in special education assignments is the overall average (77.0 percent) of the rates estimated for elementary and secondary levels.

The job application rates estimated for 1978 may be higher than the actual rates as a result of graduates' taking notice of the recent deterioration in teachers' salaries, plus the evidence of some improvement in the job market for college graduates in other occupations. The estimated rates may be conservative as an outcome of continuing reaction to the annual teacher surplus, such as the increased screening of students who are preparing to teach, increased student awareness of the tight job market for teachers, and greater commitment to teaching as a career among present graduates.

The number of jobs open to beginning teachers has been about half of the number of

*Annual reports of Frank S. Endicott, Director of Placement Emeritus, Northwestern University, Evanston, Ill.

graduates estimated to have been seeking teaching jobs during each of the past seven years. The number of these earlier graduates who were unable to locate an attractive teaching position immediately following graduation and who are now seeking jobs as beginning teachers cannot be estimated accurately, but some evidence suggests that about one-fifth of beginning teachers come from this status. Many of these have now completed graduate preparation and/or have had experience as substitute teachers. The presence of at least some qualified applicants from this source makes it very likely that the actual number of qualified prospective beginning teachers is greater than the number estimated through use of the entry rates listed above for the 1978 graduating class.

Supply of Qualified Former Teachers

Some teachers who have left their positions normally may be expected to return to active employment in teaching. In addition to those having leaves of absence, a significant number of former teachers are interested in returning to the classroom following an interruption related to educational, family, health, and/or personal interests.

The number of elementary and secondary school teachers in the labor reserve who had completed at least four years of college was estimated by the U.S. Bureau of the Census to comprise 304,460 persons in 1960 and 523,140 persons in 1970. Assuming that the same percents of the teaching staff during the preceding ten-year period have entered the labor reserve, this supply probably has grown to 650,000 persons in fall 1978. (In addition to the number of teachers estimated to be in the labor reserve in 1970 were about 29,200 *unemployed* experienced teachers between the ages of 20 and 64.)

The number of persons in this pool of former teachers who may be expected to seek active employment is also difficult to estimate. The number of former teachers who re-entered teaching in 1960-61 represented 18.3 percent of the pool of elementary-secondary teachers in the labor reserve in 1960. Applying this percentage to the 650,000 persons estimated in this pool in 1978, it can be assumed that at least 118,000 experienced former teachers having a minimum of a bachelor's degree were seeking employment in public schools in fall 1978, probably two-thirds of these at the elementary school level (78,700).

Demand for New Teachers

The demand for new teachers may be viewed from two perspectives: the number of teachers *needed* and the number of teaching *positions that will be filled.* Both types of estimates are valuable in planning for continued improvements in the quality of public schools. These estimates show the manpower implications of long-term goals for school improvement and the extent that qualified manpower is available to support immediate steps to improve the quality of education.

The number of teachers *needed* (Quality Criterion Estimate of demand) shows the demand for enough teachers to attain a minimum level of quality without consideration of obstacles to attaining this standard immediately. The number of teaching positions *that will be filled* (Adjusted Trend Criterion Estimate of demand) shows the demand for enough teachers to continue the recent annual trends toward improvement in the quality of school programs and services.

Demand for Minimum Quality

Table 2 (see p. 8) summarizes the estimated numbers of new teachers needed to staff the programs and services required if the quality of public schools were immediately raised to minimum levels. This estimate—based upon several characteristics of quality in public education for which some statistical estimates of current status are available—does not necessarily reflect but is consistent with official NEA policy or objectives. The total demand derived from the accumulation of the component estimates should be used in very general terms because (a) the statistical data underlying the estimates are not precise, (b) the estimates are intended to be conservative, and (c) teachers displaced by achievement of one category of demand would qualify for placement in positions opened by a different category of demand.

The estimated number of teachers needed to attain a minimum level of quality in public education would be much larger if it included the staff-size implications of other desirable changes in school programs and services, such as the following.

- Providing experiences designed to develop literacy and minimum competence among those who have reached the upper grade levels or who have left the schools without attaining basic learnings.

TABLE 2.–DEMAND FOR NEW TEACHERS BASED ON THE QUALITY CRITERION, 1978

Source of demand	Estimated demand for new teachers		
	Elementary	Secondary	Total
1	2	3	4
Enrollment change and trends toward improved staffing	−9,550	−1,350	−10,900
Teacher turnover	69,600	59,950	129,550
Temporary replacement of teachers having substandard qualifications	4,500	800	5,300
Reduction in number of overcrowded classes	223,800	174,200	398,000
Enlarged numbers enrolled in special education	50,000	15,000	65,000
Enlarged numbers enrolled in kindergarten and nursery school	11,850	...	11,850
Reduction in number of misassigned teachers	21,850	33,050	54,900
Enlargement of school offerings	1,000	50,000	51,000
TOTAL	373,050	331,650	704,700

- Introducing programs to secure the continued enrollment of the dropout-prone students currently enrolled in the lower grades and the estimated 835,000 persons age 14-17 or the 1.3 million persons age 18-19 who have *not* graduated from high school and are not currently enrolled in school.
- Providing more specialists to give individualized instruction to children with unique problems in mastering basic learnings and skills.
- Giving more attention to the educational needs of children who are unable to respond fully to the regular school program.
- Improving the extent and type of in-service professional growth programs for teachers (sabbatical and educational leaves, released time to observe and confer with other teachers who have comparable assignments, released time to participate in short courses directed to specific needs, etc.).
- Providing more opportunity for releasing some teachers part time to explore improved instructional methods and materials.

The components of the Quality Criterion Estimate of demand may be expanded to include these and other considerations relating to high quality in public school programs and services after statistical estimates of current and desirable status are available.

The estimates of the demand for enough teachers to attain minimum levels of quality in public school programs and services are described in the following section.

Enrollment and Staff Ratio Changes–The U.S. Office of Education estimates that in fall 1978 the number of full-time and part-time teachers in public schools decreased by 21,000 teachers. Compilation of information from the states by NEA Research in fall 1978 provides a national estimate that the number of elementary public school teachers decreased by 9,568 and the number of secondary school teachers decreased by 1,365 from the number employed in 1977-78 (making a total decrease of 10,933 teachers in fall 1978). These estimates indicate the 1978-79 session is providing employment for 1,170,357 elementary and 1,014,898 secondary teachers, a total of 2,185,255 teachers in public schools.

The NEA Research estimate of change in the number of teachers is used in the remainder of this Research Memo to indicate the number of new teachers to be employed for positions related to enrollment changes and normal staff ratio improvements in public schools. Because some positions included will be used to improve the quality of public school programs and services, this demand component may overlap a small part of the demand for new teachers needed to improve specific

aspects of educational quality estimated in other components of the Quality Criterion Estimate of teacher demand.

Teacher Turnover–The decreasing rates of voluntary separation from active employment probably stem from increased teacher awareness of the difficulties in securing employment following an interruption in service. On the other hand, many who normally continue to teach following a move to a new location may not be able to secure employment as readily as in the past. On the basis of the studies of teacher turnover made by the USOE and the sampling data collected by NEA Research, probably 129,550 teaching positions were opened to new teachers in fall 1978 by the separation (for at least one year) of 5.9 percent of the teachers employed in the 1977-78 session.

Temporary Replacement of Teachers Having Substandard Qualifications–In the absence of valid statistics on the number currently employed who do not have minimum teaching qualifications, the minimum educational requirement for qualified teachers is assumed to be the completion of the bachelor's degree. Special circumstances supporting the continued employment of many of those who lack a bachelor's degree reduce the validity of this estimate of the number who should be replaced. Also, the replacement of many of the teachers who lack only one or two years of college may only be on a short-term basis while they return to school to complete their degree.

Data from a sample survey of public school teachers show that 0.5 percent of elementary and 0.1 percent of secondary teachers in 1977-78 lacked the bachelor's degree. It is assumed that 20 percent of those without the degree will have either resigned or completed degree requirements during the 1977-78 session, resulting in an estimated 5,300 teachers without a bachelor's degree who should be replaced in fall 1978 (for at least a short term) by qualified teachers.

Reduction of Overcrowded Classes–A nationwide 1977-78 NEA Research survey of a sample of public school teachers provides an estimate of the distribution of teachers by their class size and total pupil load. These percentage distributions were applied to the total number of teachers employed in 1977-78 to estimate the number who may have been assigned extremely large classes.

On the basis of these distributions about 398,000 additional teachers are estimated as being needed in fall 1978 to reduce maximum class size to 24 pupils at the elementary school level and maximum teacher load to 124 pupils at the secondary school level. The number of assignments in which it may be acceptable to have larger numbers of students than indicated by this standard probably is more than offset by the number of assignments in which the class size should be far smaller than this maximum.

The most productive approach to improving the quality of public education probably would be progress toward achieving the staff requirements of this demand component. Problems most frequently reported by teachers are those that are directly related to oversize classes. Also, for many instructional objectives and assignments the size of the class has been shown to make a significant difference in the quality and effectiveness of instruction.

Larger Numbers Enrolled in Special Education–At least 65,000 additional teachers are needed to provide special education for all school-age children who require it. This estimate of added positions to be filled in 1978-79 is projected from data supplied by 46 states and the District of Columbia and compiled by the U.S. Office of Education's Bureau of Education for the Handicapped.

Special education includes the services required for "all children with physical, mental, or emotional impairments that are severe enough so that these children need special educational services to achieve an educational level consistent with their basic abilities."

Larger Numbers Enrolled in Kindergarten and Nursery School–Minimally, 11,850 new teachers are needed to provide kindergarten for the same proportion of five- and six-year-old children as the proportion of seven-year-olds now enrolled in school. This estimate does not include the number of new teachers needed to replace present kindergarten teachers having substandard qualifications, to replace present kindergarten teachers who interrupt or terminate their careers, or to improve the pupil-teacher ratio at this level of instruction. On the basis of U.S. Bureau of Census data in fall 1977 more than 250,000 five- and six-year-old children were estimated to be not enrolled in school.

Reduction in the Number of Misassigned Teachers–At least 54,900 new teachers are needed to reduce the impact of the misassignment of teachers in elementary and secondary schools. Data from a 1975-76 study show that 4.3 percent of elementary and 7.8 percent of secondary teachers last year were teaching full time in an assignment that was different from their major field of prepar-

ation. It is estimated that in 1977-78 these rates have fallen to 3.7 percent and 6.5 percent, respectively, and that new teachers are needed to allow the reassignment of 50 percent of misassigned teachers.

The improved supply of teachers should be steadily decreasing this problem. However, the above is a conservative estimate because it does not include the number of new teachers needed to reassign for at least part of the day the more than 150,000 teachers who are teaching at least half time but not full time in assignments outside their major field of preparation.

Enlargement of School Offerings—At least 51,000 new teachers are needed to enlarge offerings in elementary and secondary schools. These offerings have been severely curtailed by some school systems as a result of financial cutbacks, and sometimes instruction has not been offered in several subjects widely accepted as basic to a comprehensive program of public education. At least 1,000 teachers are needed to enlarge offerings at the elementary school level to contribute to improvement of the quality of education in the 4,000 school system incidences of reporting the absence of elementary school instruction in art, music, health, and/or physical education in 1973-74.

At least 50,000 new teachers are needed to enlarge the scope of secondary school offerings. In 1975-76 more than 11,000 school systems reported the absence of secondary school offerings in industrial arts and/or a work-study program. Providing two teachers for each of these courses alone would require more than 44,000 new teachers. At least 4,800 school systems provide limited or no offerings in home economics and/or instrumental music. Data are not available on the extent new teachers are needed to reinstate additional school offerings recently cutback as a result of financial constraints.

Actual Demand

The number of positions *that will be filled* by new teachers in fall 1978 is the sum of the positions created by enrollment-staff ratio trends and the positions opened by the separation of teachers employed last year. These are the first two components of the Quality Criterion Estimate summarized above. Employment in teaching is estimated to be virtually assured for 118,650 new teachers in fall 1978 (60,050 in elementary schools, 58,600 in secondary schools). If improved school staffing were implemented, these numbers would, of course, be increased.

Demand for Beginning and for Re-Entering Teachers

The preceding estimates have been directed to the demand for *new* teachers. A *new* teacher is a person entering or re-entering active status who was not employed as a full-time teacher during the preceding school year. A *beginning* teacher is a person entering active employment as a full-time teacher for the first time. Therefore, the demand for *new* teachers is the sum of the demand for *beginning* and the demand for *re-entering* teachers.

The "mix" of beginning and experienced re-entering teachers employed by local school systems may be influenced by factors such as the adequacy of the supply of beginning teachers, extent of financial constraints that may make the school system choose the least expensive of the qualified applicants, and characteristics of teachers who are continuing their employment. As a result the demand for beginning versus re-entering teachers cannot be estimated with great accuracy.

On the basis of estimates from studies of teacher turnover and characteristics of employed teachers, the number of positions that will be filled by unemployed experienced teachers in fall 1978 will be equal to 2.2 percent of the total number of elementary teachers and 1.7 percent of the total number of secondary teachers in 1977-78.

Applying these projected rates of re-entry to the total number of teachers in 1977-78, it is estimated that 25,950 former elementary and 17,300 former secondary teachers will re-enter active employment as teachers in fall 1978 following an interruption of at least one year.

Teacher Supply Compared to Demand

The preceding estimates (summarized in Table 3) show that in fall 1978 the supply of new teachers exceeded the number of available positions by 146,200 but was smaller by 439,850 than the number of positions needed to be filled to raise the quality of school programs and services to minimum levels. The number of 1978 graduates estimated to be seeking positions was almost twice (194.8 percent) the number of available positions and was exactly one-fourth (25.0 percent) of the number of positions that would be open if the quality of school programs and services had been raised to minimum levels in fall 1978.

TABLE 3.–SUPPLY AND DEMAND FOR PUBLIC SCHOOL TEACHERS, FALL 1978

Level and category of personnel	Supply	Demand to achieve minimum quality (Quality Criterion Estimate)			Actual demand (Adjusted Trend Criterion Estimate)		
		Demand	Supply minus demand	Supply as percent of demand	Demand	Supply minus demand	Supply as percent of demand
1	2	3	4	5	6	7	8
Elementary schools							
Beginning teachers	73,400	294,350	−220,950	24.9	34,100	39,300	215.2
Re-entering teachers	78,700	78,700	0	100.0	25,950	52,750	303.3
Total new teachers	152,100	373,050	−220,950	40.8	60,050	92,050	253.3
Secondary schools							
Beginning teachers	73,450	292,350	−218,900	25.1	41,300	32,150	177.8
Re-entering teachers	39,300	39,300	0	100.0	17,300	22,000	227.2
Total new teachers	112,750	331,650	−218,900	34.0	58,600	54,150	192.4
Total Elementary and Secondary							
Beginning teachers	146,850	586,700	−439,850	25.0	75,400	71,450	194.8
Re-entering teachers	118,000	118,000	0	100.0	43,250	74,750	272.8
TOTAL	264,850	704,700	−439,850	37.6	118,650	146,200	223.2

The conclusion that supply is larger than demand for beginning teachers is supported by the employment status of 1977 graduates completing preparation to enter teaching. Among those for whom follow-up information was reported, 49.4 percent secured teaching positions (52.7 percent of those prepared for elementary, 45.3 percent of those prepared for secondary, and 57.0 percent of those prepared for special education assignments). Institutions reported the employment status, as of November 1, 1977, of all graduates who had completed preparation to enter teaching in 1977. Reports were received from every state except Alaska, Michigan, and Texas. Information was reported for less than half of the graduates completing preparation in California, Florida, Kentucky, and Maine. Overall, follow-up information was reported for 69.3 percent of the 1977 graduates prepared to enter teaching.

Supply and Demand by Region–The percents of teacher education graduates who entered teaching in the fall following graduation are one indication of the differences in supply-demand conditions among the states. However, because these percentages may be influenced by factors other than supply and demand, the differences should be treated in very general terms.

The percents of teacher education graduates entering teaching jobs in 1977 were *highest* in the Plains states (62.6 percent): Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota. The following states report that at least 58 percent of their teacher education graduates entered employment as teachers in fall 1977: Alabama, Idaho, Iowa, Minnesota, Missouri, Montana, Nebraska, New Mexico, North Dakota, South Dakota, Wisconsin, and Wyoming.

The percents of teacher education graduates who have entered teaching jobs in 1977 were *lowest* in the Mideast (35.1 percent) and in New England (43.7 percent). The Mideast states comprise Delaware, the District of Columbia, Maryland, New Jersey, New York, and Pennsylvania. The New England states comprise Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont. Employment in teaching for 1977 was reported for less than 45 percent of the teacher education graduates in Delaware, District of Columbia, Hawaii, Illinois, Maryland, Massachusetts, Mississippi, New Jersey, New York, Pennsylvania, Rhode Island, South Carolina, and Vermont.

Supply and Demand by Assignment–Estimates of the supply and the demand for beginning teachers by subject assignment are listed in Table 1, columns 3 and 4. The supply for a given assignment is estimated to be 84.5 percent of the graduates prepared for assignments at the elementary level, 71.5 percent of the graduates prepared for assignments at the secondary level, and 77.0 percent of the graduates prepared for assignments in special education. The demand for each assignment is estimated by apportioning the total demand for the level in which the assignment is classified on

the basis of the percentage distribution of the number of beginning teachers among these assignments reported by 16 states last year.

The estimated supply of prospective teachers from the 1978 class to fill jobs open to beginning teachers in fall 1978 exceeded the demand in all assignment areas, except trade-industrial-vocational-technical. Many graduates who have completed preparation to teach art, music, foreign language, or health and physical education at the secondary school level probably are qualified to teach the subject at either the secondary or elementary level. Also, data on the demand for new elementary teachers by subject may not be as accurate as data for other assignment areas because of state differences in school organization and record keeping for elementary school teachers. Therefore, the most accurate way to evaluate the supply-demand condition of these elementary school assignments may be to review the combined elementary and secondary school data.

The estimate of an undersupply of graduates who were prepared to enter trade-industrial-vocational-technical positions in secondary schools is of questionable accuracy because (a) teachers entering these assignments may not normally come from the current graduating class (work experience in the specific occupation or technology may also be required), (b) the wide variety of occupations in this category makes it difficult to identify which programs of teacher preparation should be enlarged, and (c) a relatively small number of teachers are involved in this assignment area (the open positions may be filled by a small proportion of those graduates prepared for more than one assignment who have been listed as completing preparation for other assignments).

Among the assignment areas in which reasonably accurate estimates can be made, the supply is least adequate in trade-industrial, agriculture, mathematics, natural and physical sciences, and distributive education.

Subjects or assignments in which the supply is estimated to most widely exceed actual demand include social studies, physical and health education, art, and elementary regular instruction.

Retrospect and Prospect

Recent reports of local or regional shortages of qualified beginning teacher applicants accompanied by predictions of severe teacher shortages in the mid 1980's may be evaluated through a review of supply-demand estimates and projections. Table 4 presents recent and projected teacher supply and demand and statistics on the placement of graduates who have completed preparation to enter teaching in each of the past 11 years.

The number of students graduating with minimum qualifications for entry into public school teaching revised from estimates reported in previous NEA Research Memos appears in column 2. The number of graduates shown for 1979-80 and subsequent years is 17.0 percent of the National Center for Education Statistics' projections of those receiving the bachelor's and first professional degrees.

The percents of these graduates completing minimum certification requirements for entering teaching have decreased from 34.1 percent in 1972 to 19.0 percent in 1977. This reduction follows the decrease in the proportion of college freshmen reporting a probable career objective of teaching, which was 22.0 percent in fall 1968 and 8.8 percent in fall 1973. Between 1973 and 1978 the percents of freshmen considering a teaching career have fluctuated between 6.2 and 8.0 percent, and the total number of college freshmen has not varied widely. It seems likely, therefore, that following a small additional decrease in the number of annual graduates prepared to teach in 1979, the annual numbers will stabilize for about five years.

Listed in column 3 are the numbers of graduates that would be observed if those prepared to teach continued to be 37.2 percent of all bachelor's and first professional degree graduates (the percent observed in 1967). This provides an estimate of the growth in the number of graduates who would elect to enter teaching if attractive jobs were readily available. The number of 1978 graduates prepared to teach is half the number who would be graduating if the 1967 proportion of all bachelor's and first professional degree graduates was prepared to teach.

The estimated number applying for teaching jobs (column 4) in years before 1972-73 is 75.0 percent and since then is 77.0 percent of the graduates prepared to teach—the same proportion used to estimate the present supply in Tables 1 and 3.

The annual estimated demand for beginning teachers (column 5) illustrates the trend in the annual numbers of jobs open over the entire period. The numbers shown for 1978 are approximately equal to those listed in Tables 1 and 3. The numbers listed for preceding years, however, vary from published figures because of gradual reductions in teachers' job-separation rates in the early 1970's and the use of final figures for total employment (Table 4), instead of preliminary estimates used in the annual reports. The estimates are based on the increase or decrease in the total n 'm-

TABLE 4.–TRENDS IN TEACHER SUPPLY AND DEMAND

Session	Previous year's graduates prepared to enter teaching (in thousands)		Estimated numbers of new graduates (in thousands)		Supply as percent of demand	Percent of previous year's teacher education graduates on November 1				
	Actual and projected	Estimated from 1967 proportion	Applying for teaching jobs	Receiving teaching jobs		Employed as teachers	Seeking a teaching job	Otherwise gainfully employed	Status unknown	With follow-up information reported
1	2	3	4	5	6	7	8	9	10	11
1967-68	220	220	164	164	100.0	70.0	0.9	4.2	15.5	83.8
1968-69	233	248	175	183	95.6	70.5	1.6	3.8	14.8	79.2
1969-70	264	284	199	184	108.2	67.3	2.5	4.3	16.8	81.0
1970-71	284	308	213	159	134.0	60.1	4.6	5.8	18.8	88.0
1971-72	314	326	236	115	205.2	53.3	7.6	6.4	22.5	82.0
1972-73	317	346	244	131	186.3	50.9	10.1	9.7	20.6	81.2
1973-74	313	362	242	128	189.1	49.8	9.4	9.5	23.1	77.3
1974-75	279	372	215	121	177.1	47.8	9.1	10.3	24.0	84.7
1975-76	238	364	184	126	146.0	45.7	10.6	10.1	25.3	86.4
1976-77	227	368	175	94	186.2	47.4	11.7	11.0	21.4	67.3
1977-78	198	388	152	81	187.7	49.4	9.1	11.8	21.1	69.3
1978-79	190	392	146	75	194.7	...	...	...	...	...
Projected										
1979-80	181	395	139	70	198.6					
1980-81	183	401	141	66	213.6					
1981-82	185	406	142	77	184.4					
1982-83	186	408	143	84	170.2					
1983-84	187	409	144	92	156.5					
1984-85	187	408	144	115	125.2					

ber of teaching positions plus a net turnover rate ("teachers leaving" minus "teachers returning after at least one year away") of 5.5 percent for 1971-72 and preceding years and 4.4 percent for years since 1971-72.

For each year since 1976 the demand for beginning teachers has primarily resulted from the replacement of teachers leaving active employment. To obtain the demand estimate between 1976 and 1982, the numbers estimated by the net loss of 4.4 percent of the teachers employed the preceding year have been reduced further by the decrease in the total number employed for the given year. The upswing in demand for beginning teachers in 1981 reflects the beginning of less-severe annual reductions in the total of teachers employed. Jobs for beginning teachers to fill added positions are projected to occur annually for several years beginning in 1984-85.

The percents listed in column 6 show the trend from near balance in supply and demand for beginning teachers in the late 1960's to an annual oversupply during the 1970's and early 1980's, despite the severe reductions during the middle 1970's in the annual numbers graduating with qualifications for entry into teaching.

Placement success in teaching jobs (column 7) reflects the rise in the supply-demand ratio, with the percents entering teaching jobs remaining far below the late 1960's level throughout the 1970's. The percents of graduates seeking teaching jobs on November 1 following graduation have been above 7 percent each year since 1971-72 (column 8), which is three or four times as high as was reported immediately before 1970-71. The numbers entering gainful employment outside teaching have been 9 percent or higher since 1973-74 (column 9), which is more than twice as high as the percentages reported before 1970. In the institutions reporting follow-up data, the percent of teacher education graduates for whom the institution had no information (column 10) has increased from 15 percent in the late 1960's to more than 20 percent each year in the 1970's. The extent that the statistics in columns 7 to 10 represent all graduates prepared to teach may be estimated from column 11, which shows the percents of graduates prepared to teach for whom institutions reported follow-up data.

For the present the overall numbers expected to complete preparation for public school teaching for each of at least the next four years are likely to

be more than adequate for the number of available teaching jobs. The projections are tentative, and beyond 1983-84 the estimates can be influenced significantly by small changes in percents of graduates prepared to teach, the graduates' interest in seeking teaching positions, availability of previous years' graduates who were unable to obtain teaching jobs immediately after graduation, numbers of teachers separating from employment, progress toward improved school programs and staffing, attractiveness of teaching as a profession, willingness of school systems to employ former teachers, the birth rate, and job market conditions for college graduates as a whole.

In summary, there is scant evidence that immediate expansion is needed in the numbers of students preparing to enter teaching. In fact, this very likely would contribute to a further decline in the percents of teacher education graduates who are successful in obtaining employment in the career for which they have prepared.

The appropriate response to scattered reports of increased difficulties by some school systems to locate qualified applicants for teaching jobs seems to be to improve the mix of present graduates among the assignment fields and to improve the attractiveness of teaching as a career in these school systems.

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Population Trends and Their Implications for Association Planning, 1979

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POPULATION TRENDS AND THEIR IMPLICATIONS FOR ASSOCIATION PLANNING, 1979

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POPULATION TRENDS AND THEIR IMPLICATIONS FOR ASSOCIATION PLANNING, 1979

- *The number of annual births was 3.3 million in U.S. fiscal year 1977 and in 1978—up by 150,000 from the 3.15 million each year between 1973 and 1976.*
- *The number of annual births is projected to increase 150,000 annually between fiscal 1979 and 1981, 100,000 in 1982, 50,000 in 1983 and in 1984, 30,000 in 1985 and in 1986, and less than 15,000 in 1987 before beginning to decline again each year beginning in 1989.*
- *The states differ widely in the change in the number of births in 1978 from the number born in 1973. The number is down by at least 4.0 percent in the District of Columbia, Georgia, Maine, Massachusetts, New Jersey, New York, and Rhode Island; while the number is up by at least 15.0 percent in Alaska, California, Idaho, Montana, Nevada, North Dakota, Oregon, Utah, Washington, and Wyoming.*
- *The number of public school teachers is projected to continue to decrease each year until 1983.*
- *The number of persons ages 18 to 21 is projected to reach a peak of 17,156,000 in 1979, then an era of annual decreases will begin that will end in 1994 when 12,972,000 persons will be in this age group.*
- *Barring further reductions in the attractiveness of jobs for beginning teachers, there is little likelihood of a teacher shortage during the next decade.*

National Population Trends

Wide differences in the local status and rates of change in birth rates and population migration have contributed to severe enrollment declines in some school systems while enrollment in others continues to grow. Because the national estimates indicate an overall reduction in the total number of jobs for teachers and higher education faculty, immediate and informed planning is needed to correct the resultant problems facing education and the teaching profession.

Trends among school-age populations. The 3,111,000 births in fiscal 1974 were the lowest in any year since 1946. The numbers born each year between 1973 and 1976 have been less than 3.2 million. The number of births increased to 3.3 million in fiscal 1977 and remained at that level in 1978. However, the number of children born each year will probably increase until 1988, despite a continuation of relatively low birth rates. The number of births during the 12 months ending with February 1979 is up by 52,000 over the previous 12-month period. Except for the moderate increase in the numbers born between 1969 and 1971, the number of children born each year decreased annually between 1961 and 1974.

The outcome (reported in 1977 projections by the U.S. Bureau of the Census and shown in Table 1) is that for the nation as a whole the number of age 5-17 children will decrease annually between 1971 and at least 1984. In 1985 the number of age 5-17 children and youth will begin to increase moderately every year until the year 2000.

TABLE 1.–NUMBER OF PERSONS IN SELECTED AGE GROUPS PROJECTED TO THE YEAR 2000

Year (July)	Ages 5-13		Ages 14-17		Ages 5-17		Ages 18-21	
	Number (000)	Percent change	Number (000)	Percent change	Number (000)	Percent change	Number (000)	Percent change
1	2	3	4	5	6	7	8	9
1968	36,804	0.5	15,173	3.0	51,977	1.2	14,529	5.8
1969	36,836	0.1	15,560	2.6	52,396	0.8	14,426	–0.7
1970	36,636	–0.5	15,910	2.2	52,546	0.3	14,707	1.9
1971	36,105	–1.4	16,281	2.3	52,386	–0.3	15,019	2.1
1972	35,458	–1.8	16,557	1.7	52,015	–0.7	15,437	2.8
1973	34,737	–2.0	16,748	1.2	51,485	–0.1	15,795	2.3
1974	34,072	–2.0	16,880	0.8	50,952	–0.1	16,110	2.0
1975	33,440	–1.9	16,934	0.3	50,374	–1.1	16,484	2.3
1976	32,962	–1.4	16,893	–0.2	49,855	–1.0	16,767	1.7
1977	32,227	–2.2	16,783	–0.7	49,010	–1.7	16,956	1.1
1978	31,384	–2.6	16,648	–0.8	48,032	–2.0	17,106	0.9
1979	30,641	–2.4	16,272	–2.3	46,913	–2.3	17,156	0.3
1980	30,197	–1.4	15,763	–3.1	45,960	–2.0	17,117	–0.2
1981	29,804	–1.3	15,219	–3.5	45,023	–2.0	17,018	–0.6
1982	29,543	–0.9	14,656	–3.7	44,199	–1.8	16,874	–0.8
1983	29,334	–0.7	14,309	–2.4	43,643	–1.3	16,499	–2.2
1984	29,175	–0.5	14,261	–0.3	43,436	–0.5	15,989	–3.1
1985	29,098	–0.3	14,392	0.9	43,490	0.1	15,442	–3.4
1986	29,475	1.3	14,295	–0.7	43,770	0.6	14,873	–3.7
1987	30,142	2.3	13,965	–2.3	44,107	0.8	14,521	–2.4
1988	30,945	2.7	13,480	–3.5	44,425	0.7	14,470	–0.4
1989	31,715	2.5	12,996	–3.6	44,711	0.6	14,601	0.9
1990	32,568	2.7	12,771	–1.7	45,339	1.4	14,507	–0.6
1991	33,382	2.5	12,791	0.2	46,173	1.8	14,179	–2.3
1992	34,113	2.2	12,982	1.5	47,095	2.0	13,685	–3.5
1993	34,712	1.8	13,228	1.9	47,940	1.8	13,198	–3.6
1994	35,140	1.2	13,681	3.4	48,821	1.8	12,972	–1.7
1995	35,392	0.7	14,226	4.0	49,618	1.6	12,995	0.2
1996	35,513	0.3	14,778	3.9	50,291	1.4	13,184	1.5
1997	35,531	0.1	15,262	3.3	50,793	1.0	13,432	1.9
1998	35,457	–0.2	15,631	2.4	51,088	0.6	13,887	3.7
1999	35,303	–0.4	15,879	1.6	51,182	0.2	14,435	3.9
2000	35,080	–0.6	16,045	1.0	51,125	–0.1	14,990	3.8

SOURCES:

1967–1969 U.S. Department of Commerce, Bureau of the Census. *Estimates of the Population of the United States by Age, Sex, and Race: April 1, 1960 to July 1, 1973.* Current Population Reports, Series P-25, No. 519. Washington, D.C.: Government Printing Office, 1974. 79 pp.

1970–1977 U.S. Department of Commerce, Bureau of the Census. *Estimates of the Population of the United States by Age, Sex, and Race: 1970 to 1977.* Current Population Reports, Series P-25, No. 721. Washington, D.C.: Government Printing Office, April 1978. 47 pp.

1976–2000 U.S. Department of Commerce, Bureau of the Census. *Projections of the Population of the United States: 1977 to 2050.* Current Population Reports, Series P-25, No. 704. Washington, D.C.: Government Printing Office, 1977. 87 pp.

Estimates are as of July 1 of the listed year and include Armed Forces overseas. Projections are Series II.

The age 18-21 population will peak at 17.2 million persons this year, but next year it will begin an era of annual decreases that will last until 1995.

The rates of decrease in the numbers of these population groupings will not be constant. The most severe drop in the age 5-17 population will be between 1975 and 1983, with annual decreases ranging between 1.0 and 2.3 percent. Only in 1978, 1979, 1980, and 1981 will the annual decreases equal or exceed 1.9 percent of the previous year's age 5-17 population. The age 5-13 group dropped or will drop between 2.0 and 2.6 percent in 1973, 1974, and 1977 through 1979. The age 14-17 group will decrease annually from 1976 through 1990, except in 1985 when there will be a small increase of 130,000 over 1984. The years in which the percentage drop in the age 14-17 population will exceed 2.0 percent are from 1979 through 1983 and from 1987 through 1989. The annual decrease will be over 3 percent in 1980 through 1982, 1988, and 1989. The largest percentage decrease will be in 1982, when a drop of 550,000 youth will be a reduction of 3.7 percent in the number in 1981.

The age 18-21 population will decline by 2.0 percent or more annually between 1983 and 1987 and between 1991 and 1993. In 1994 this age group will reach its lowest number since 1969 (when it was 14,426,000), when it will decline to 12,972,000. The drop of 4.2 million persons in this age group between its peak size of 17,156,000 in 1979 to the 1994 low is about one-fourth (24.4 percent) of the total in this age group in 1979.

TABLE 2.–CLASSROOM TEACHERS IN GRADES K-12 AND FULL-TIME FACULTY HAVING RANK OF INSTRUCTOR OR ABOVE IN ALL INSTITUTIONS OF HIGHER EDUCATION, 1970 TO 1986

Year (fall)	Total teachers K-12		Public school teachers, K-12		Higher education faculty[a]	
	Number (000)	Percent change	Number (000)	Percent change	Number (000)	Percent change
1	2	3	4	5	6	7
1970	2,288	2.1	2,055	2.1	369	5.4
1971	2,294	0.3	2,063	0.4	379	2.7
1972	2,338	1.9	2,103	1.9	380	0.3
1973	2,376	1.6	2,138	1.7	389	2.4
1974	2,404	1.2	2,165	1.3	406	4.4
1975	2,441	1.5	2,196	1.4	440	8.4
1976	2,440	0.0	2,193	−0.1	434	−1.4
1977	2,427	−0.5	2,178	−0.7	442	1.8
1978	2,409	−0.7	2,157	−1.0	441	−0.2
1979	2,386	−1.0	2,132	−1.2	441	0.0
1980	2,360	−1.1	2,104	−1.3	440	−0.2
1981	2,348	−0.5	2,088	−0.8	436	−0.9
1982	2,342	−0.3	2,080	−0.4	433	−0.7
1983	2,345	0.1	2,080	0.0	426	−1.6
1984	2,371	1.1	2,103	1.1	419	−1.6
1985	2,410	1.6	2,139	1.7	409	−2.4
1986	2,454	1.8	2,180	1.9	401	−2.0

SOURCE:

U.S. Department of Health, Education, and Welfare, Education Division, National Center for Education Statistics. *Projections of Education Statistics to 1986-87.* Washington, D.C.: Government Printing Office, 1978. For 1977 and subsequent years intermediate alternative projections are listed for K-12; and low alternative projections are listed for higher education.

[a]Includes full-time instructional staff with rank of instructor or above in all institutions of higher education.

TABLE 3.–TRENDS IN THE NUMBER OF LIVE BIRTHS AND IN THE AGE 5-17 POPULATION

State and region	Live births, 1978		Population age 5-17 in 1978	
	Number	Percent change from 1973	Number (000)	Percent change from 1973
1	2	3	4	5
NEW ENGLAND	**150,599**	**-3.9**	**2,668**	**-9.3**
Connecticut	35,695	-2.6	669	-11.2
Maine	14,584	-4.8	248	-4.2
Massachusetts	69,078	-7.6	1,242	-10.7
New Hampshire	12,362	11.6	197	0.0
Rhode Island	11,766	-7.1	201	-10.7
Vermont	7,114	12.8	111	-5.1
MIDEAST	**548,784**	**-2.8**	**9,070**	**-10.6**
Delaware	8,945	8.8	130	-11.6
District of Columbia	19,054	-4.3	135	-13.5
Maryland	47,987	1.3	930	-10.5
New Jersey	89,778	-4.0	1,603	-10.0
New York	229,782	-4.8	3,795	-10.4
Pennsylvania	153,238	-0.9	2,477	-11.2
SOUTHEAST	**770,542**	**2.0**	**10,936**	**-4.1**
Alabama	58,738	-1.7	857	-4.8
Arkansas	33,445	2.3	484	-2.0
Florida	112,987	4.7	1,662	-3.3
Georgia	83,784	-7.0	1,181	-3.8
Kentucky	58,359	4.8	784	-4.9
Louisiana	75,659	14.8	969	-4.9
Mississippi	45,583	2.7	596	-3.9
North Carolina	82,583	-3.7	1,238	-4.7
South Carolina	47,198	-1.2	685	-3.1
Tennessee	70,431	2.8	956	-2.8
Virginia	70,418	2.1	1,124	-5.9
West Virginia	31,357	11.4	400	-4.8
GREAT LAKES	**622,135**	**1.1**	**9,364**	**-9.2**
Illinois	172,149	3.2	2,504	-9.1
Indiana	83,595	-0.9	1,230	-8.1
Michigan	136,449	-3.0	2,151	-9.0
Ohio	161,813	0.5	2,416	-10.0
Wisconsin	68,129	8.9	1,063	-9.6
PLAINS	**268,614**	**12.2**	**3,733**	**-9.5**
Iowa	45,071	14.7	643	-9.9
Kansas	34,747	13.5	491	-8.4
Minnesota	62,356	14.9	911	-10.1
Missouri	77,075	7.8	1,042	-8.8
Nebraska	25,216	10.1	343	-9.0
North Dakota	12,112	16.7	148	-10.8
South Dakota	12,037	14.1	155	-11.9
SOUTHWEST	**345,426**	**9.1**	**4,407**	**-0.5**
Arizona	43,004	13.2	531	-0.2
New Mexico	21,988	6.5	297	-3.6
Oklahoma	43,735	10.0	608	-2.1
Texas	236,699	8.5	2,971	0.1
ROCKY MOUNTAIN	**124,467**	**26.5**	**1,381**	**-2.1**
Colorado	44,387	12.8	582	-5.7
Idaho	18,751	34.0	203	1.5
Montana	13,176	17.8	179	-6.3
Utah	40,051	43.3	323	3.2
Wyoming	8,102	37.0	94	5.6
FAR WEST	**490,105**	**20.0**	**6,456**	**-3.7**
Alaska	8,761	31.9	104	8.3
California	356,205	18.5	4,677	-4.4
Hawaii	16,650	8.6	200	-5.2
Nevada	10,868	23.5	148	6.5
Oregon	39,940	25.9	511	-2.7
Washington	57,681	26.9	816	-3.0
50 states and D.C.	3,320,672	5.2	48,015	-6.7

SOURCES:

U.S. Department of Health, Education, and Welfare. Public Health Service, National Center for Health Statistics. "Births, Marriages, Divorces, and Deaths for 1978." *Monthly Vital Statistics Report* 27:12; March 15, 1979.

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U.S. Department of Commerce, Bureau of the Census. *Estimates of the Population of States, by Age: July 1, 1971 to 1977.* Current Population Reports, Series P-25, No. 734. Washington, D.C.: Government Printing Office, November 1978. 19 pp.

_____. *Estimates of the Population of States, by Age: July 1, 1977 and 1978.* Current Population Reports, Series P-25, No. 794. March 1979. 4 pp.

The age 5-17 population projections are highly accurate for at least the next seven years and the age 18-21 population projections are highly accurate through 1994 because both are based on the numbers of children born before 1977.

The population projections listed in Table 1 indicate the basic numbers that will influence enrollment trends and the number of staff. Projections of actual enrollments and/or numbers of teachers require the application of assumptions about the population percentage that will be enrolled and the ratio of students to teachers. Table 1 shows the base line from which these related estimates may be derived.

Trends in teacher employment. It is difficult to project accurately the number of teachers that will be employed for several reasons, e.g., the unknown effects of high levels of unemployment and underemployment, continuing need to improve preschool education-related experiences, increased emphasis on appropriate instruction for handicapped children and youth, increased need to provide instruction for functionally illiterate youth and adults, and the long-term trend toward increasing the number of professional staff per 1,000 students. However, barring a major change in the trend toward lowering the student-teacher ratio, the reductions in numbers of teachers will likely not be as severe as the reductions in the numbers of school-age persons.

National Center for Education Statistics projections assume that the trend toward smaller numbers of pupils per teacher will continue and indicate that the annual decreases in the number of K-12 teachers will probably not exceed 1.3 percent of the number of teachers employed in the previous year (Table 2). However, NCES projections of the numbers of higher education faculty show decreases of at least 1.6 percent beginning in 1983.

Variations Among States

These national population trends probably will not be observed exactly in any one state, school system, or higher education institution. States and localities differ widely in birth rates, population mobility, rates of changes in these factors, and related demographic characteristics. The relative severity of potential enrollment declines among the states can be estimated by combining the rates of recent change in the number of children born, the number of persons age 5-17, and projected numbers of persons ages 5-14 and 15-24 (see Tables 3 and 4).

The states *least likely* to face major enrollment declines include Alaska, Arizona, Idaho, Nevada, Texas, Utah, and Wyoming.

The states likely to have the *most severe* enrollment declines are Connecticut, Delaware, District of Columbia, Illinois, Massachusetts, Michigan, New Jersey, New York, Ohio, and Pennsylvania. These states have the greatest reductions in the number of births, number of persons age 5-17, and projected number of persons age 5-14.

The following states have relatively high reductions in the age 5-17 population and in the projected age 5-13 population, but the recent number of annual births in these states has increased more than in most other states: Delaware, Iowa, Minnesota, and North Dakota. These states may not have long-term declines, especially if recent migration trends are changed.

The states with sharp declines in annual births but with relatively small decreases in the age 5-17 population—which may delay the loss of enrollment potential—are Georgia, Maine, North Carolina, Rhode Island, and South Carolina.

The following states have the most severe outlook for *reductions* in the age 15-24 population: District of Columbia, Indiana, Iowa, Kansas, Michigan, Missouri, North Dakota, Ohio, Pennsylvania, and South Dakota. Between 1975 and 1985 the age 15-24 population in each of these states is projected to decline by at least 9.0 percent. These decreases will not be severe until after 1980 (see Table 4, columns 6 and 7).

In the same 10-year span an *increase* of 3.0 percent or more in the age 15-24 population is projected in these states: Alaska, Arizona, Colorado, Florida, Georgia, Hawaii, Nevada, New Hampshire, and Utah. However, in 1985 the 15-24 age group will be smaller than it is projected to be in 1980 in all of these states (except Georgia and Utah).

The American Council on Education has reviewed the population shifts and migration trends of 18-year-olds enrolled in higher education and projects that the states most likely to lose freshman students between 1975 and 1985 are Arkansas, Connecticut, Illinois, Minnesota, New Jersey, New York, North Dakota, Ohio, and Pennsylvania. The states most likely to have more freshman students during this period are Arizona, Colorado, Delaware, Florida, Idaho, and Utah.

In summary, population declines will be *most severe* in the New England, Mideast, Great Lakes, and Plains states and *least severe* in the Southwest, Rocky Mountain, and Far West states.

TABLE 4.–PROJECTED POPULATION AGE 5-14 AND 15-24 YEARS FOR 1980 WITH PERCENT CHANGE FROM 1975 TO 1989 AND FROM 1975 TO 1985

State and region	Population age 5-14			Population age 15-24		
	Projected 1980		Percent change from 1975 to projected 1985	Projected 1980		Percent change from 1975 to projected 1985
	Number (thousands)	Percent change from 1975		Number (thousands)	Percent change from 1975	
1	2	3	4	5	6	7
NEW ENGLAND	**1,846.2**	**-14.4**	**-20.2**	**2,341.4**	**4.5**	**-2.4**
Connecticut	452.6	-17.6	-25.4	574.2	2.9	-6.0
Maine	174.6	-9.2	-11.5	204.0	5.6	0.2
Massachusetts	861.5	-15.3	-21.7	1,141.7	5.1	-1.9
New Hampshire	135.1	-9.2	-11.6	158.5	8.3	5.1
Rhode Island	144.0	-10.2	-14.2	171.8	1.8	-2.3
Vermont	78.4	-10.8	-14.4	91.2	2.6	-3.0
MIDEAST	**6,310.1**	**-14.5**	**-21.1**	**7,677.4**	**1.5**	**-7.1**
Delaware	91.9	-13.6	-17.3	119.6	4.2	-5.3
District of Columbia	95.6	-13.9	-22.8	138.1	0.6	-9.0
Maryland	664.1	-12.8	-16.9	856.8	7.7	2.3
New Jersey	1,126.8	-13.4	-18.7	1,318.0	4.4	-2.7
New York	2,626.7	-15.1	-22.9	3,178.7	1.1	-7.4
Pennsylvania	1,705.0	-14.9	-21.5	2,066.2	-1.9	-13.0
SOUTHEAST	**7,952.5**	**-5.7**	**-6.2**	**9,458.4**	**4.8**	**-0.3**
Alabama	603.4	-8.1	-10.5	694.7	1.3	-7.3
Arkansas	348.1	-5.9	-6.7	386.1	3.2	-3.6
Florida	1,297.0	0.1	5.5	1,625.7	15.4	14.8
Georgia	886.0	-3.3	-3.2	1,008.5	6.1	6.3
Kentucky	560.2	-7.2	-8.3	661.8	2.9	-4.4
Louisiana	671.6	-10.0	-13.8	776.4	1.9	-6.2
Mississippi	425.5	-6.2	-8.0	463.4	1.0	-7.5
North Carolina	907.5	-5.7	-7.3	1,091.3	2.2	-2.9
South Carolina	501.9	-4.4	-4.2	595.5	2.6	-2.3
Tennessee	667.4	-7.8	-10.1	785.7	2.1	-5.1
Virginia	801.4	-8.8	-10.4	1,068.1	6.2	0.8
West Virginia	282.5	-6.8	-9.5	301.2	-4.4	-13.7
GREAT LAKES	**6,486.6**	**-13.1**	**-17.9**	**7,811.7**	**0.3**	**-10.0**
Illinois	1,741.0	-12.6	-16.7	2,114.0	1.9	-8.4
Indiana	854.2	-12.2	-16.8	1,004.7	-0.3	-10.1
Michigan	1,497.8	-12.7	-17.4	1,785.9	-0.2	-10.1
Ohio	1,671.3	-13.4	-18.8	1,983.7	-2.4	-13.7
Wisconsin	722.3	-15.5	-20.6	924.0	4.1	-5.1
PLAINS	**2,541.8**	**-14.0**	**-17.9**	**3,216.0**	**1.3**	**-9.6**
Iowa	435.0	-15.3	-21.1	527.1	0.1	-10.5
Kansas	335.4	-12.5	-15.6	435.9	-0.9	-11.8
Minnesota	615.3	-16.1	-21.2	786.3	2.5	-8.0
Missouri	712.5	-12.7	-15.7	898.0	1.9	-9.0
Nebraska	238.6	-12.0	-13.6	305.3	3.3	-6.8
North Dakota	99.2	-14.3	-17.1	130.8	0.8	-12.6
South Dakota	105.8	-13.6	-16.2	132.6	-1.3	-15.2
SOUTHWEST	**3,212.1**	**-3.1**	**-0.5**	**3,746.9**	**6.2**	**1.3**
Arizona	417.5	3.4	10.8	482.5	14.5	14.4
New Mexico	212.8	-6.6	-5.2	255.8	9.0	1.5
Oklahoma	428.8	-5.4	-4.4	506.7	1.9	-5.6
Texas	2,153.0	-3.5	-1.3	501.9	5.3	0.5
ROCKY MOUNTAIN	**1,014.8**	**-2.8**	**0.3**	**1,248.4**	**8.0**	**2.6**
Colorado	428.5	-5.3	-2.6	578.0	10.1	5.3
Idaho	149.2	-1.0	2.2	165.9	6.3	1.6
Montana	122.6	-10.0	-10.1	151.1	4.2	-6.3
Utah	250.3	5.4	11.9	275.0	7.1	3.4
Wyoming	64.2	-4.9	-4.0	78.4	7.1	0.3
FAR WEST	**4,531.7**	**-9.0**	**-10.3**	**5,734.5**	**4.9**	**-1.1**
Alaska	77.4	-0.1	2.7	102.3	20.4	21.4
California	3,281.1	-9.5	-10.8	4,200.4	4.6	-1.6
Hawaii	147.5	-5.5	-4.4	202.1	29.5	24.0
Nevada	105.8	-2.4	-1.3	124.9	17.3	18.1
Oregon	361.2	-6.7	-6.8	427.1	1.8	-4.3
Washington	558.7	-10.9	-14.0	677.7	-0.9	-8.1
50 states and D.C.	33,895.8	-10.2	-13.0	41,234.7	3.2	-4.2

SOURCE:
U.S. Department of Commerce, Bureau of the Census. *Illustrative Projections of State Populations by Age, Race, and Sex: 1975 to 2000.* Current Population Reports, Series P-25, No. 796. Washington, D.C.: Government Printing Office, 1979. Series II-B projections are listed; these incorporate the 1970-75 interstate migration trends.

Variations Within States

Although two persons in three (67.0 percent) live in a metropolitan area, the population growth rate in these areas since 1970 has decreased from being more than to being less than that in nonmetropolitan areas. The average annual percent change in total metropolitan population between 1970 and 1978 was 0.5 percent compared with 1.5 percent between 1960 and 1970. Between 1970 and 1978 the average annual percent increase in metropolitan population outside of central cities was 1.5 percent, down from 2.4 percent between 1960 and 1970. On the other hand, between 1970 and 1978 in the central cities of metropolitan areas the average annual change in total population was minus 0.6 percent compared with plus 0.6 percent during the 1960's. Between 1970 and 1978 the average annual percent increase in nonmetropolitan areas was 1.4 percent, up from the 0.7 percent observed between 1960 and 1970.

The total population growth between 1970 and 1978 was greater in metropolitan areas outside of central cities (9.1 million) than in nonmetropolitan areas (7.7 million), while the central cities of metropolitan areas lost 3.2 million persons.

The metropolitan population growth rate is greater in areas with less than 500,000 persons than in the larger centers, and the growth rate is greater among areas in the South and West than it is in the Northeast and North Central regions.

In nonmetropolitan areas, the counties with highest numerical growth are those adjacent to metropolitan areas, those with 10 percent or more net immigration of persons age 60 or older, those with 30 percent or more of the population employed in manufacturing, and those where a senior state college is located. Counties that are entirely rural had a population increase of 6.1 percent between 1970 and 1974 compared with a population decrease of 4.3 percent between 1960 and 1970.

Although birth rates and population migration factors of individual school districts probably do not parallel the estimates for the states in which they are located, knowledge of national, regional, and state conditions may be useful in evaluating the significance and stability of local trends.

Teacher Lay Offs

The number of teaching positions opened annually through attrition (deaths, retirements, transfers to nonteaching assignments, entry into other occupations, personal or family responsibilities, etc.) has been between 7 and 9 percent of the staff in grades K-12 and between 5 and 6 percent of the staff in higher education. Re-entry of experienced teachers normally has reduced the net loss to 5 percent of K-12 teachers and to 3 percent of higher education faculty. Therefore, barring a significant reduction in these attrition rates, the enrollment declines should not require the *forced* separation of K-12 teachers (some positions opened by attrition simply would not need to be filled). However, the severe reductions in the age 18-21 population coupled with the relatively low attrition rates of higher education faculty make it likely that some regular faculty will lose their positions as a direct consequence of enrollment declines.

Continuing Teacher Job Shortage

For at least the next 10 years, most teaching vacancies at all levels will be created by the need to replace those leaving active teaching service. Population projections indicate that some additional teachers will be needed for the projected increase in the numbers of elementary school students beginning about 1986. Therefore, a fairly stable number of teaching job openings will occur annually for five more years, followed by some increases that will return the total number of teachers to 1977 levels by 1986.

More higher education graduates enter teaching than any other occupation. (Employment in K-12 teaching was reported by 15 percent of the employed 1975 bachelor's degree graduates and by 36 percent of the employed 1975 master's degree graduates. Employment in educational institutions was reported by 54 percent of all the employed 1973 doctorate recipients.) The number of graduates receiving the bachelor's degree is expected to peak in 1982; master's degree, in 1984; and doctor's degree, in 1985. After these peak years, a slight increase in the percent of graduates entering education during the peak year will be needed just to fill the same number of annual teaching vacancies.

Small annual increases in the number of teaching positions over the previous year are likely in the elementary grades beginning about 1985; in secondary grades, about 1990; and in higher education, about 1995 (see Tables 1 and 2). However, the age 5-13 population will not rise again to the 1977 level until 1990; the age 14-17 population will not return to 1977 levels during the rest of this century; and the age 18-21 population will drop back to the 1977 level about 1982 and remain below that level until after the year 2000.

Therefore, the number of additional teachers needed for expanded school and college enrollments over the next 15 years is not likely to create significant annual demands for new graduates expecting to enter this field, with the possible exception of elementary school jobs in the late 1980's.

Despite recent significant reductions in the proportions of higher education graduates preparing to enter teaching, considerably more qualified new graduates are seeking teaching jobs in 1979 than there are jobs available at all levels—kindergarten through graduate school. This imbalance, in existence for at least the past five years, is likely to continue for five more years before moderating during the subsequent 10 years as the total numbers of graduates reduce to the levels of the late 1960's.

For at least 10 more years there will probably be an ample annual supply of qualified applicants for all teaching vacancies, barring major changes in projected birth rates, the total employment growth rate, working conditions and salaries in education compared with those in other occupations, and improvement in the quality and scope of education. However, if recent declines in the attractiveness of beginning teachers' salaries and working conditions are not reversed, the annual surplus in elementary-secondary schools may end within the next five years. If the number of *attractive* jobs for beginning teachers increases significantly in the mid-1980's, a teacher shortage is not likely because larger proportions of graduates will be prepared to teach. For example, if the percent of all bachelor's and first-professional-degree graduates who prepare to teach returned to the 1968 level, at least 200,000 additional, prospective beginning teachers would be available annually.

Regardless of the assumption made about how many people who were unable to secure teaching jobs in the heaviest surplus years (1972 to 1984) may be available for education employment in the late 1980's, little or no evidence exists that a shortage of qualified teacher applicants will occur in any year during the next decade.

Private School Enrollment

The U.S. Bureau of the Census reports that the numbers enrolled in private schools and colleges represent a slightly higher proportion of total enrollments in fall 1978 than they did in fall 1976. Enrollment in private institutions is reported for 11.4 percent of those enrolled in elementary schools; 8.0 percent, in secondary schools; and 24.5 percent, in higher education. The proportions enrolled in private institutions at each level were lower in 1969 through 1978 than in the years immediately before 1969. For example, in 1968 private institution enrollment represented 12.5 percent of those enrolled in elementary schools, 9.6 percent of those in secondary schools, and 27.3 percent of those in higher education.

At the elementary and secondary school levels the slight increase in the percent enrolled in private school in fall 1978 resulted mainly from a decrease in public school enrollment rather than from an increase in numbers enrolled in private schools.

Guidelines for Local Association Planning

The most desirable approaches to alleviating declining enrollment problems probably are not readily acceptable to many school systems because of financial constraints and/or high unemployment. Prompt and enlightened action by the local association is necessary to assure that the advantages of adopting desirable alternatives are fully appreciated.

Guidelines that every local association should consider as it plans a response to the projected enrollment declines are listed below largely in K-12 terms, but the concepts are equally applicable to higher education institutions.

Review Local Conditions. Keep up-to-date on changes in population, school enrollment, and the number of births in your school district. Well organized school systems maintain an annual tabulation of the relationship of the number of 6-year-olds being enrolled to the number of children born to parents living in the school district six years earlier. Also, school systems must project their enrollments to support long-term planning for budgets and buildings. Studying this information will help the local association assess the extent and timing of declining enrollment problems.

Guard Against Regressive Attitudes. Be alert to the possibility that stagnation, restriction, regression to lower standards, and insecurity may result from low-growth or negative-growth trends in school-age population. (These trends are accompanied by high unemployment and underemployment, significant shifts in other segments of the economy, and severe financial constraints on state and local governments.) These attitudes cause problems because they affect teachers as well as the general public.

The local association must stimulate positive thinking, point to actions needed to improve the quality of the schools, cite the opportunities

opened by the increased supply of qualified personnel to alleviate traditional deficiencies in education as well as in other public services, and publicize innovative approaches to solving educational problems.

Increase the Effectiveness of Association Communications. Success in maintaining and improving the quality of education depends on how well teachers and the public are kept informed on local conditions, issues, and desirable alternatives. The local association should produce the information needed by members and the public to make the decisions needed to achieve association objectives.

Update Goals for Improving the Quality of Schools and of Teaching. Because more qualified personnel are now available to support immediate improvements in all educational services, the local association should review and update its goals for improving the quality of schools and of teaching. Accrediting agencies, leading scholars, professional associations, and learned societies have all issued suggested standards.

The following personnel-related areas may also be ripe for immediate improvements.

Scope of offering

- Are students who have difficulties in the typical academic classroom offered alternative instruction?
- Does the school district offer a sufficient array of vocational, technical, fine arts, and practical studies?
- Are students who have learning handicaps given specialized instruction?
- Are preschool-age children being prepared for an effective response to the first-grade classroom?
- Are the basic literacy needs of the local adult population being met?
- Are the employment and vocational needs of the local adult population being met?

Student services

- Do certified nonteaching professional personnel screen students who have learning difficulties and advise the school how to improve the students' performance?
- Does the school district provide enough counselors, librarians, and health services personnel?
- Do remedial specialists provide individualized instruction for students who require more attention than can be made available in the regular classroom?

Instructional setting

- Are class sizes at levels most conducive to effective instruction?
- Is the teacher work load within reasonable limits for the most effective instruction?

Staff development

- Does the school district provide teachers with adequate released time for professional growth (attending professional meetings, visiting other teachers who have similar assignments, consulting with supervisory personnel and with specialized professional personnel, etc.)?
- Does the school district provide teachers with long-term leave to enroll in advanced or specialized courses, engage in work-related experiences, prepare instructional materials, serve as resource persons in evaluation and planning, participate in college and university evaluations and planning, etc.?
- Does the retirement plan provide teachers with incentives to retire when they reach the age of early or normal retirement?